NSROC Engineering Topics

•NSROC Engineering Activities	Krause
•ACS Transition	Shendock
•Data Analysis	Shendock
•WSMR Command Uplink	Lankford
•WFF 93 Data (TM) Test Set	Lankford
•GPS Activities	Bull/Diehl
•Motor Buy	Scott

NSROC Beginnings and Continuation

- NSROC's core group of engineers, technicians and support personnel has allowed a seamless transition from a government managed program to current program. The tradition of the the Sounding Rocket Program is maintained.
- NSROC has actively supported 18 missions since February 1, 1999. To date, there has not been a mission failure.
- NSROC is also responsible for many support groups including WFF Safety, CSOC, vendor subcontractors and external range interfaces.
- Continued open communication with the SRWG, SRPO and all PIs is vital in maintaining the program's viability.
- NSROC is open to SRWG input in overall process:
  - What makes sense to the program, makes sense to NSROC.

SRWG Meeting Comments, Summer 1999

- Sounding Rocket User's Manual
  - Updated version in 1999
  - Available online at NASA Wallops homepage
  - Pointer to updated User's Manual on nsroc.com homepage
- NSROC homepage now available
  - Challenge is for NSROC to compile and present proper requirements response and also allow an accurate bid to support the collection of science for PIs
    - NSROC Mission Questionnaire
      - Result is a better requirement response
      - Also a more proper cost proposal to SRPO and the PI
      - Questionnaire will be Online in Dec 99
- NSROC Environmental Testing document completed and online on nsroc.com

SRWG Meeting Comments, Summer 1999 (cont.)

- NSROC Review Process
  - Formal NSROC Review Panels established for all Design Reviews and Mission Readiness Reviews.
  - Continued oversight to maintain a consistant quality of the product and the processes employed.
- New System Procurements
  - Next Generation Motor Buy
    - Requirements established to allow similar or better performance for existing payload capabilities
    - More detail in follow during today's discussion
  - Gyro Procurement
    - Real need for procurement to support end-of-year 00 missions
    - Currently evaluating options available

NSROC Implementation of the DS-19

- NSROC Implemented the 1st flight for SAAB Ericsson DS-19 Impact Dispersion Control subsystem
- Mission occurred on September 27, 1999 at White Sands Missile Range
- DS-19 provides 45 seconds of active control and guides to an impact point (IIP)
- Dispersion about the aim point for the DS-19 1st mission was 0.48 km DR and 0.54 km CR (0.72 km total dispersion)
- The NSROC DS-19 Program included DS-19 training, direct SAAB interfacing, TM design changes and real-time launch support.

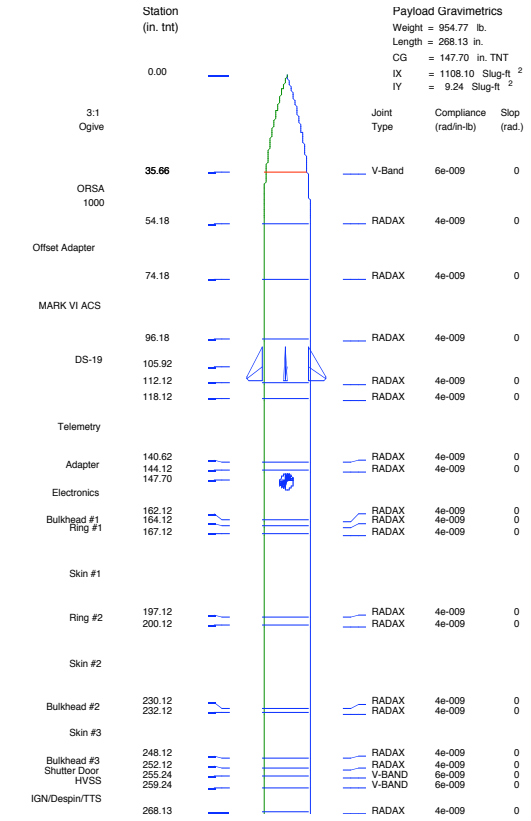


Figure 2-1. Terrier-Black Brant (Mod 2) 36.168 UG/Wilkinson Payload Configuration

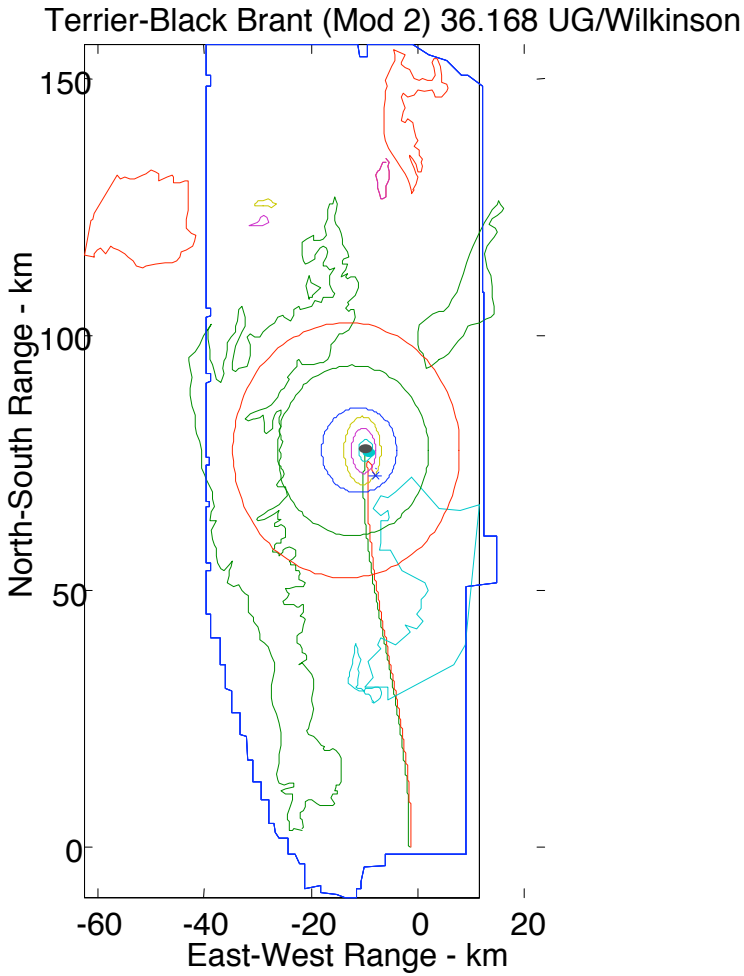
SAAB Erickson DS-19 / S-19 Comparison

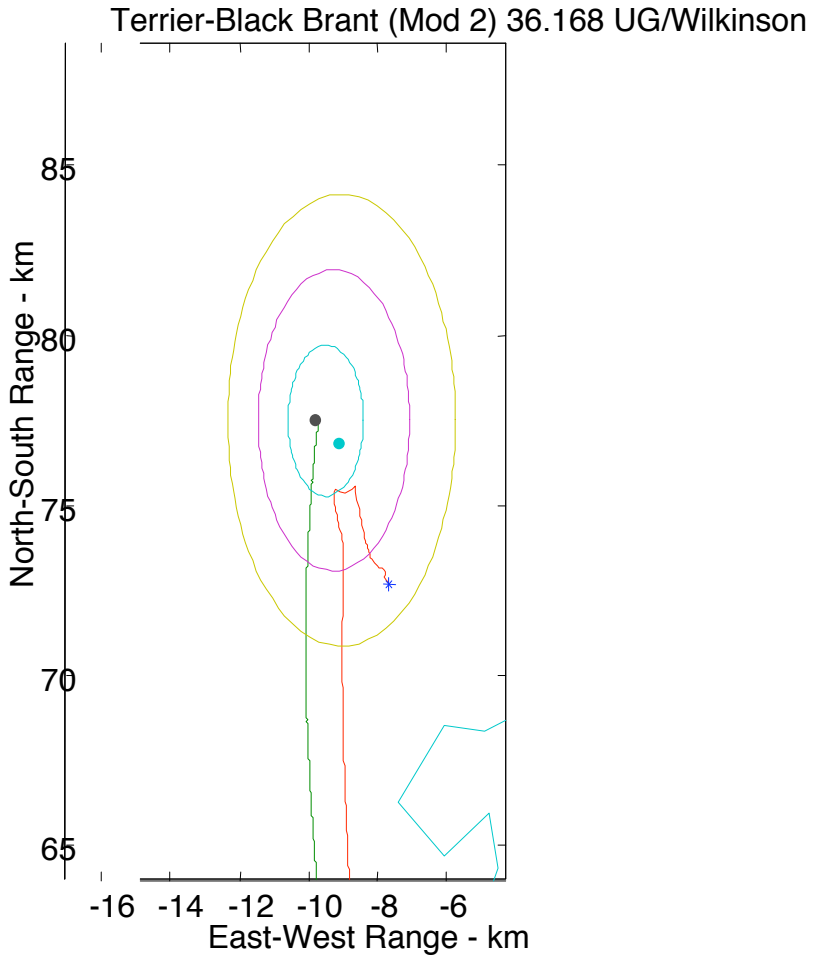
Terrier-Black Brant (Mod 2) 36.168 UG /Wilkinson
954.8 lb P/L, 87.0° QE, 340°AZ, WSMR, DS19

	DS19		S19
Predicted Apogee, km (sm)	330.3 (205.4)		330.3 (205.3)
Actual Apogee, km (sm)	329.0 (204.4)		
3-σ Theoretical Dispersion	2.0%	7.5%	7.67% DR
	1.2%	7.5%	6.84% CR
Desired impact km (sm)	77.25 (48) N		9.66 (6) W

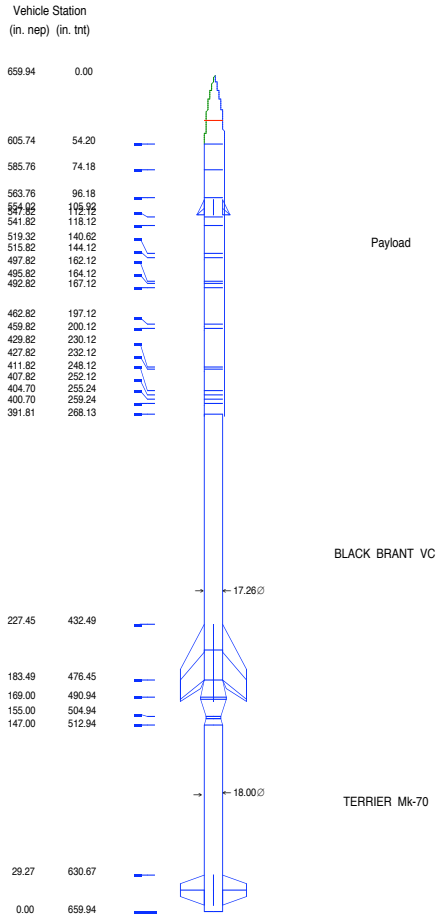
	Down Range (km)	Cross Range (km)
Aim Point	77.85	0.00
Impact Point	77.36	0.54
Nominal Miss	-0.48 (-0.22σ)	0.54 (0.41σ)

36.168 Wilkinson Mission DS-19 Flight Data





36.168 Wilkinson Trajectory - Predict vs. Actual



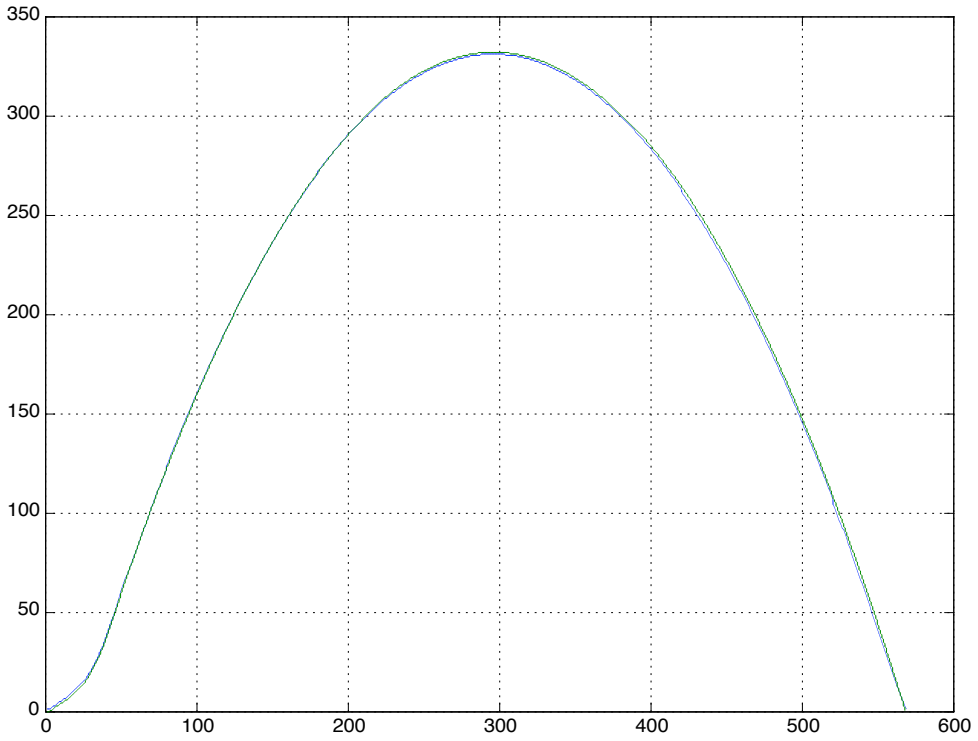


Figure 2-2. Terrier-Black Brant (Mod 2) 36.168 UG/Wilkinson Launch Configuration